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## **A cognitive perspective on pre-service and in-service language teaching**

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### **Abstract**

This paper reviews a selection of research within the field of language teacher cognition from two main perspectives: *pre-service* and *in-service* language teaching practices. The first section focuses on the ways in which prior language learning experiences shape pre-training beliefs and knowledge about language education. It also discusses the impact of teacher education programmes on the development of these constructs. The second section discusses in-service L2 teachers' cognitions and classroom practices in relation to their subject matter knowledge and to the interplay between cognition, experience, and context. This review highlights key findings from the research which have implications for teacher education and development courses.

**Keywords:** language teacher cognition; prior language learning experiences; teacher education and development; subject matter knowledge; cognition, experience, and context.

Este artículo reseña una selección de estudios en el campo de la cognición del profesor de idiomas desde dos perspectivas principales: las prácticas de enseñanza de idiomas de profesores en formación y de profesores en servicio. La primera sección examina la manera en que las experiencias de aprendizaje de idiomas previas a la formación docente dan forma a las creencias y conocimientos sobre la enseñanza de idiomas de los profesores en formación. También investiga el impacto de los programas de formación docente en el desarrollo de estos constructos. La segunda sección analiza los constructos cognitivos y las prácticas en el aula de los profesores de idiomas en servicio con relación a su conocimiento del contenido y a la interacción entre estos constructos, la experiencia y el contexto. Esta reseña destaca los resultados empíricos de los estudios que tienen implicancias para la formación y el desarrollo de docentes de idiomas.

### **Introduction**

Language teacher cognition has recently been defined as the networks of *beliefs*, *knowledge*, and *thoughts* which language teachers hold about all aspects of their profession and which they draw upon in their work (Borg, 2006).

Interest in language teacher cognition research stretches back to the mid-1990s. The emergence of this tradition represented a conceptual and methodological shift in language teaching research. Firstly, it meant that second language acquisition studies, with their focus on learners and learning outcomes, ceased to be the predominant source of data about language teaching. Secondly, research on teaching had previously been dominated by a behaviourist and normative model which focused on how teachers' observable behaviours and actions were correlated with learning outcomes. Teacher cognition research thus emerged to provide a more holistic and comprehensive approach to the study of teaching by catering for both the public and private domains of teaching (i.e. its observable as well as its unobservable mental dimension) (Ibid.).

The purpose of this article is to review this now established tradition of research from the perspectives of pre-service and in-service teaching. I will also highlight the implications of language teacher cognition research in these areas for language teacher education and development.

## 1. Language teacher cognition in pre-service teaching

A substantial amount of research has been conducted on pre-service teachers in second or foreign language (L2) education. This section will focus on teachers' prior language learning experiences (PLLEs) and on the impact of teacher education on the development of their pre-training beliefs.

### 1.1 Prior language learning experiences

This area has attracted considerable interest in language teacher cognition research. This dates back to 1975, when Lortie introduced the notion of 'apprenticeship of observation' to refer to the way in which teachers' prior experiences as learners shape their beliefs about education. These pre-training beliefs filter the information to which trainees are introduced in teacher training courses (Tillema, 1994). They help inexperienced teachers make sense of classroom information and also determine their teaching profiles and classroom practices (Lortie, 1975). However, these beliefs are recognised as being resistant to change (Pajares, 1992).

Pre-service teachers are believed to bring with them both positive and negative images of teaching, from which they create stereotypes of good and bad instruction respectively. Johnson (1994) found that student teachers' images from PLLEs exerted a profound impact on their beliefs about L2 teachers and L2 teaching. The trainees in her study held strong images of their L2 educators and their classroom practices. Johnson also found that images, especially negative ones, sometimes contrasted markedly with the trainees' self-perceptions as L2 teachers and their own instructional practices. Conflicting images emerged, therefore, between the type of teaching they wanted to provide and the teaching methodologies that they had observed in their PLLEs. Though they were aware of the inadequacies of some of the images emerging from PLLEs, these pre-service teachers were often unable to teach according to their projected image of teaching. Consequently, they ended up acting out prior images of L2 instruction.

Further evidence indicates that teachers tend to replicate the teaching methods and strategies which they found effective or positive as L2 learners and to reject those which they associated with negative experiences (Numrich, 1996). Borg, M. (2005) found that the formation of the pre-course beliefs of the student teacher in her study had been influenced mostly by her negative early school experiences. An example of this is the trainee's belief in an anti-didactic, student-centred teaching methodology. This was formed as a reaction to her experience in teacher-centred classrooms, which had been characterised by boring teacher-fronted lecturing. However, as observed in Johnson (1994), the rejection of prior teaching practices does not automatically result in the development of alternative practices, since teachers might slip back into behaviours which they had previously rejected. Despite her stated beliefs, the student teacher in Borg, M. (2005) resorted to the default teaching models provided by her prior school experiences. Thus, she tended to lecture the learners and to provide negative feedback on their responses.

The impact of PLLEs on teachers' practices has also been observed in relation to the subject matter knowledge which they acquire during these experiences. The nature of this knowledge and the perception which teachers have of it seem to play a key role in determining the focus of their teaching practices and the L2 approach and instructional techniques which they adopt. Andrews (1999) and Reeves (2009) found that both the *implicit* and the *explicit* nature of the linguistic knowledge that teachers had developed via PLLEs influenced their attitudes and approaches towards the teaching of language and their decisions to adopt or avoid certain instructional strategies. Borg (1999) claims that this type of decision does not only depend exclusively on teachers' knowledge of and confidence in the linguistic

aspect in question, but also on the type of experience, *positive* or *negative*, with which teachers associate the development of such knowledge. He found that the positive or negative character of his three participants' grammar-based PLLEs had influenced their decision to promote the use of grammatical terminology in their classes.

## 1.2 The impact of teacher education on pre-training beliefs

Pre-training beliefs being resistant to change, it is not surprising that teacher education courses have been observed to exert little or no impact on the development of such beliefs. Warford & Reeves (2003) offer an example in their study of pre-service L2 teachers' preconceptions of teaching. Although two of them praised the communicative teaching approaches to which they were introduced in their teacher education programmes, they could not envision themselves teaching in that way. Instead, they held to the grammar-based teaching models which they had observed in their PLLEs.

Different reasons have been suggested to explain why teacher education has little influence on the growth of pre-training beliefs. Firstly, explanations may be found in the very nature of such beliefs and in the uses to which pre-service teachers put them. Prior beliefs are formed early in their minds and reinforced over a long period of time (Pajares, 1992). Moreover, although PLLEs create beliefs and knowledge which represent a one-sided student's view of teaching, teacher trainees tend to use these experiences as if they were prototypical and generalisable. Thus, on entry to teacher training, they often question the validity of new teaching philosophies instead of testing their own lay beliefs (Holt-Reynolds, 1992). Secondly, studies point to the nature and content of teacher education courses. In Hayes (2005) none of the three Sri Lankan teacher educators studied had found the content of their own teacher training programmes particularly useful. They all criticised the theoretical character of the courses. One of them specifically highlighted the poor models provided, which did not help trainees to see theory applied in practice. Finally, teacher education may fail to alter pre-training beliefs when the latter are, in some way, reinforced by the general educational system. Richards & Pennington (1998) found that teachers abandoned the communicative principles and practices promoted in their training courses and, instead, reverted to the norms of the Hong Kong teaching tradition (teacher-centred, textbook-based and exam-oriented, with L1 used to supplement L2 instruction). This teaching behaviour was reinforced by other school members who expected them to preserve the status quo of the teaching context.

However, this pessimistic view of the stability of prior beliefs and of teacher training programmes as exerting little influence on their development has been challenged by some studies (e.g. Cabaroglu & Roberts, 2000; Mattheoudakis, 2007). Sendan & Roberts (1998) criticise this view for being "over-simplistic" (1998: 230) and for focusing only on "the content and not the structure of student teacher thinking" (Ibid: 233). Exploring the development of a student teacher's personal theories about effective teaching, they observe that, although the contents of theories remain relatively stable, there are notable changes in their structure (e.g. the incorporation of new constructs and the reorganisation of the existing structure to accommodate refinements). These findings suggest that studies exploring the impact of teacher education on the development of pre-training beliefs remain incomplete unless they involve an examination of both the content and structure of such beliefs at different stages of the training programme.

It has been suggested that, unless teacher education acknowledges the power of pre-training beliefs and encourages trainees to reflect upon their validity, it does little to help pre-service teachers outgrow their existing rationales and develop more professional conceptualisations of teaching (Holt-Reynolds, 1992). In Bailey et al. (1996), seven MA students (teachers-in-training) wrote and analysed their language learning autobiographies

with the purpose of examining their PLLEs and the potential impact which these experiences might have on their teaching philosophy and practice. They found that the autobiography task helped them to articulate their teaching beliefs and discover the rationale behind them, to interpret theory in the light of their own language learning experiences, to define their values and consider the implications of these in their future teaching decisions, and to become reflective practitioners. However, an awareness-raising task such as this does not guarantee that teachers will not revert, perhaps unconsciously, to the models that they witnessed in their PLLEs. Analysis of the true impact of PLLEs on student teachers' practices and the development of their own teaching theories suggests that, in addition to reflecting upon their schooling experiences, trainees must engage in teaching practice and subsequent introspective work.

In line with this, Farrell (1999) examined the PLLEs of 5 pre-service teachers through a reflective assignment. But, in addition, trainees were presented with alternative approaches to language teaching (in this case grammar teaching) and were given the opportunity to try out one of the options in class. He found that, after practice, they all held less extreme positions and recognised that no single grammar teaching approach was effective for all teaching situations.

Pre-service teacher education programmes in some countries such as Switzerland (primary and secondary levels) and Argentina (undergraduate L2 teacher training) include teaching practice along with self-evaluation and reflection tasks. Research in these contexts should be encouraged to provide insights into the role of post-hoc self-assessment and reflective practice on the development of pre-training beliefs.

PLLEs no doubt play a pivotal role in teachers' lives since they influence their subsequent cognitive development and their engagement with professional education. Therefore, teacher education must incorporate PLLEs if they expect to help pre-service teachers to develop their pre-training knowledge and beliefs and to move beyond their apprenticeship of observation. Teacher learning must involve the interaction between students' past and present. In other words, trainees must be enabled to understand, appreciate, and incorporate new theory in the light of their prior experiences.

## **2. Language teacher cognition in in-service L2 teaching**

Borg (2006) argues that the conceptual shift which language teacher cognition represents in L2 teaching research is most evident in studies where teacher cognitions are explored with direct reference to actual teaching practices. This section will examine in-service L2 teachers' cognitions and practices in relation to their subject matter knowledge, one of the key components of the knowledge base of teaching (Shulman, 1987), and the interplay between cognitions and interactive factors. The review here will focus largely on studies in grammar teaching, since this is the curricular domain which has attracted the most attention in language teacher cognition research and has, therefore, been explored from multiple perspectives. The findings and issues discussed are, however, relevant to other subject areas.

### **2.1 Subject matter knowledge**

One of the cognitive constructs most widely studied in language teacher cognition research is teachers' content or subject matter knowledge. This cognition comprises teachers' knowledge of the facts, concepts, and organizing principles of a discipline (Grossman et al., 1989).

The first attempts to examine teachers' knowledge about language (KAL) were mostly test-based studies (e.g. Bloor, 1986; Andrews, 1994). They found inadequacies in teachers'

KAL and suggested the need for them to develop their declarative KAL. The relevance of a sound KAL was also voiced by Grossman et al., who argued that “knowledge, or lack of knowledge, of the content can affect how teachers critique textbooks, how they select material to teach, how they structure their courses, and how they conduct instruction” (1989: 28). Thus, most subsequent studies focused not only on measuring teachers’ KAL but also on examining its impact upon classroom practices.

Andrews’ extensive work on teacher language awareness has shed light on the influence of KAL on pedagogical practice. Andrews (2007) claims that, within each individual teacher, the factors influencing the operation of KAL (e.g. contextual, attitudinal, and professional) combine and interact in different ways, and that this combination and interaction are not stable and may well differ from class to class, especially attitudinal and contextual factors. The influence of teachers’ KAL upon their classroom performance is mainly about their ability to transform the output from the learners, materials, and teacher into input suitable for learning. Of importance is also their ability to perform in ‘real time’ and to use metalanguage to support learning. For instance, inadequacies in the KAL of one of the teachers in Andrews (1999) had resulted in her failure to filter some evident deficiencies in the materials and in her inability to formulate clear explanations. In contrast, another teacher who showed a solid KAL and confidence in it made strategic use of the learners’ contributions as a major source of input into his grammar teaching and effectively filtered the input provided by the materials.

The study of teachers’ KAL has involved, apart from its declarative dimension, teachers’ *perceptions* of this knowledge and its impact on pedagogical practice. Borg (2001: 27) found that teachers’ self-perceived knowledge about grammar influenced “the extent to which teachers teach grammar”, “their willingness to engage in spontaneous grammar work”, “the manner in which they respond to students’ questions about grammar”, “the extent to which they promote class discussion about grammar”, and “the way they react when their explanations are questioned”. In addition, Sanchez (2012: 12) observed an impact on “the use of the learners’ L1 in grammar instruction”, “the extent to which teachers rely on printed materials”, and “the extent to which they acknowledge (implicitly or explicitly) the categorical validity of their explanations”. This suggests that efforts to support the development of in-service teachers’ KAL should aim not only to respond to the ‘gaps’ in their KAL but also to enable them to develop a realistic awareness of their KAL and its pedagogical implications, as well as a positive attitude towards their KAL and its continuing development.

Teachers’ attitudes towards and knowledge about grammar are further explored in Borg, S. (2005)’s study of two L2 teachers. Borg found that the development of and attitudes towards their KAL and its impact on their grammar teaching practices had been highly influenced by their educational biographies and professional experience. For instance, one of the participants adopted strategies which she had found effective for the development of her own KAL (e.g. the explicit analysis of grammar items) or which she derived from her own classroom experience (e.g. independent discovery learning). In contrast, the other teacher had negative memories of the grammar-based lessons he had attended at secondary school. Furthermore, he had had few opportunities to reflect upon and develop his KAL in his professional career. This had resulted in a distinct lack of confidence in his KAL and limitations in his instructional repertoire for grammar work. In his lessons grammar work was, therefore, minimised and always planned. These findings indicate that teacher development courses should aim to raise teachers’ awareness of their prior L2 learning and teaching experiences and their impact on their pedagogical practices. A combined focus on KAL and methodology in in-service training courses may allow teachers to develop “a

qualitatively richer and pedagogically more informed sense of their KAL and of its roles in their teaching” (Ibid: 339).

## 2.2 Interplay between teacher cognitions and interactive factors

Various efforts have been made to categorize the knowledge base of teaching (e.g. Shulman, 1986). The emerging categories were questioned in subsequent studies on teacher knowledge because, though analytically useful, “in reality these categories are melded together in complex and indeed inextricable ways” (Johnston & Goettsch, 2000: 461).

Exploring the pedagogical systems of an experienced and qualified EFL teacher, Borg (1998a) found that the teacher’s beliefs, knowledge, theories, assumptions, and attitudes about teaching, learning, the subject matter, the students, and himself interacted in complex ways to give shape to his instructional decisions. Borg also observed that these decisions were influenced by the teacher’s real-time perception of the context of instruction (e.g. learners’ expectations) and his educational and professional experiences. Moreover, the data showed that the teacher’s pedagogical systems were more profoundly influenced by his initial teacher training than by his pre-training beliefs. This evidence appears to contradict the claims discussed above about the limited impact of formal teacher education. A further interesting finding of this study is the formative effect of in-service training on the development of the teacher’s pedagogical systems. Enabling the teacher to review his previous L2 learning and teaching experiences helped him to redefine his beliefs about grammar teaching. This suggests that in-service training is more likely to have a lasting impact when it addresses teachers’ existing beliefs.

Reference was also made above to the influence of a variety of factors (contextual, attitudinal, and professional) on the operation of teachers’ KAL in lesson preparation and classroom practices (Andrews, 2007). In the same vein, Borg (1998b: 159), focusing on teachers’ “explicit talk about grammar”, found that the role which metatalk plays in teachers’ work is shaped by interacting methodological, psychological, and experiential factors. Influences included the teachers’ previous classroom experience of effective practices and of students’ preferences and expectations, their beliefs about particular methodological orientations, their awareness of their own L2 learning strategies, their PLLEs, and their knowledge of the subject matter. Likewise, the influence of experiential (in particular, the teachers’ PLLEs), cognitive (their self-perceived knowledge about grammar), and contextual (the prospect of a high-stakes university entrance exam) factors are reported in Pahissa & Tragant (2009). The body of work on teachers’ cognitions and practices discussed here shows that cognition, experience, and context interact in complex and dynamic ways to define teachers’ instructional decisions and practices. Thus, any study of cognition and practice which does not attend to experience and context will result in partial characterizations of teachers and teaching.

## Conclusion

In concluding this paper, I would like to highlight three main suggestions which the studies reviewed here collectively make for L2 teachers and L2 teacher education and development:

1. Teachers hold beliefs (derived from both their educational and professional experiences) which are resistant to change and which exert a powerful impact on their teaching practices. To facilitate the development of these beliefs and allow for desired

forms of impact, teachers should examine their existing beliefs regularly and reflect upon their validity in the light of their current teaching objectives and career goals.

2. Teachers' subject matter knowledge and perception of it have been observed to highly influence their teaching decisions and actions. Teachers should assess this knowledge in relevant instructional contexts to develop a realistic awareness of it and its pedagogical implications and, therefore, of the importance of its continuing development.
3. Evidence has been provided about the complex and dynamic interaction of cognition, experience, and context in teachers' pedagogical practices. Teachers should explore the multiplicity of factors influencing their teaching to gain a deeper understanding of L2 teaching and L2 teacher roles and, thus, take more informed decisions.

Altogether, the above will enable teachers to develop an extended and honest conceptualization of second or foreign language teaching.

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